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ABSTRACT

One of the important characteristics of Web-based courses is that they utilize different Internet tools to close the gap between the instructor and the learner. Although many different Internet tools (including course Web sites, e-mail, electronic mailing lists, threaded discussion group, chat, instant messaging, audio conferencing, and video conferencing) can be used today to close this gap, there are a number of problems with the existing tools. According to the literature, current problems with tools that support Web-based instruction include: finding appropriate software for students and instructors; access control to keep outsiders from disrupting class communication; training students and instructors in the use of various software packages; and cost of acquisition and use of appropriate tools. This paper introduces ICQ Active List, an Internet tool which can support a Web-based distance education community by eliminating all of these problems. The paper also discusses the issue of creating an online community, which is very important in Web-based courses, and it describes the principles that were followed in order to create such a community. Most of the principles and the experience can be used to create learning communities in Web-based courses. (Author/AEF)

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Creating an Online Community by Using ICQ Active List

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Abstract

One of the important characteristics of the Web-based courses is that they utilize different Internet tools to close the gap between the instructor and the learner. Although many different Internet tools can be used today to close this gap, there are a number of problems with the existing tools. In this paper, we introduce ICQ Active List, which has the characteristics of many Internet tools that can be used in place of all those tools to eliminate the problems. We also touch to the issue of creating an online community, which is very important in Web-based courses, and describe the principles we followed to create such a community. Most of the principles and the experience can be used to create learning communities in Web-based courses.

Introduction

One of the most important characteristics of Web-Based Instruction (WBI) is to utilize different Internet communication tools. Since almost all of the interaction vital for WBI takes place on these tools, effective use of them is directly related to the success of the courses. There a number of Internet communication tools that can close the gap between the instructors and students of WBI. These tools are course web sites, electronic mail (e-mail), electronic mailing lists (or listservs), threaded discussion groups (or Usenet newsgroups), Internet Relay Chat (IRC or chat), Instant Messaging (IM), audio conferencing (or Internet telephony), and video conferencing (Harrison, 1997; Madjidi et. al., 1999; Pattison, 1999).

Internet Communication Tools

A course web site is a combination of web pages that can hold such course related information as course syllabus, course notes, course lectures, course resources, web links to other useful web sites on the Internet, and etc. Students access course web sites through web browsers such as Internet Explorer or Netscape Navigator.

E-mail is the most popular Internet communication tool. An e-mail client, such as Microsoft Outlook Express, Microsoft Outlook, or Netscape Messenger, is enough to use this basic communication technology. When someone sends you an e-mail, it is kept on an e-mail server. When you would like to check for your e-mail messages, you use the e-mail client software to connect to the e-mail server and retrieve your e-mail messages. For WBI, e-mail can serve such functions as the exchange of ideas, questions, and data. In addition, any kind of relevant course materials such as assignments can be attached to an e-mail message for easy submission.

An electronic mailing list makes mass distribution of an e-mail message an easy task. Instead of sending the same e-mail message to many users one by one, the message is sent to a list. Then, every member of the e-mail list receives the same message. An e-mail list is a suitable tool for WBI instructors for sending common interest items to students such as course announcements, reminders, additional web links to other useful web sites, and etc.

A treaded discussion group is a subject-related discussion in which participants post their messages in a central place. This central place could be a Bulletin Board System (BBS), Usenet newsgroup, or web forum. In this central place, users can read messages and respond to others' messages. Each new topic becomes a separate thread in the discussion. When someone reacts to someone else's message, it appears under the original one. In WBI, this structure can be used by students for topical discussion, assignment submission, social interaction, and collaborative working.

Chat provides a text-based conversation among multiple users. The text messages are seen immediately by all users. The conversation usually takes place in virtual chat rooms which reside on chat server software. Users connect to these chat servers by using a client chat software such as mIRC. Chat rooms can be used in WBI for such purposes as virtual office hour, real time discussion, real time collaboration, social interaction, and etc.

An instant messaging tool is a convenient way to see when Internet friends are online and to message them in real time. It is faster than e-mail because the technology behind IM allows the message to be pushed to the receiver in a fraction of time, which can be said almost instantly. AOL Instant Messenger, MSN Messenger Service, and Yahoo! Messenger are examples of IM client software that can be used between Internet users. IM tools can be utilized in WBI for such instructional activities as virtual office hour, real time discussion, real time collaboration, social interaction, and etc.

Audio conferencing allows two way voice communication via an Internet connection. With the help of a technology called Voice over Internet Protocol (VoIP), communication can be carried out between two different computers, between two different physical phones, or between a computer and a physical phone. In all of these methods, voice is converted to IP packets which travel through the Internet networks. Since the use of Internet is cheaper than the use of phone lines, audio conferencing is an economical solution to get WBI users together in an audio conference. In WBI, audio conferencing can be used for such purposes as virtual office hour, real time discussion, real time collaboration, social interaction, and etc.

Video conferencing requires the attachment of a small camcorder to the computer. With the help of this device a stream of audio and video can be transmitted over the Internet to the other users. The advantage of video conferencing over chat is the

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presence of live audio and picture of the participants of the communication. Video conferencing tools can be used in WBI for such purposes as virtual office hour, real time discussion, real time collaboration, social interaction, and etc.

Instructors and students have used these communication tools in practical WBI settings for various purposes. Branon and Essex (2001) found the reasons for using synchronous communication tools in web-based instruction environments as:

- Holding virtual office hours,
- Team decision-making,
- Brain-storming,
- Community building, and
- Dealing with technical issues.

They also stated the reasons for using asynchronous communication tools in such environments as:

- Encouraging in-depth, more thoughtful discussion,
- Communicating with temporally diverse students,
- Holding ongoing discussions where archiving is required, and
- Allowing all students to respond to a topic.

Their survey indicated that 35% of the distance educators planned to increase their use of synchronous tools, while 65% planned to increase the use of asynchronous tools. Just 5% of them planned to decrease the use of synchronous tools and only 3% planned to decrease the use of asynchronous tools. These numbers show that there will be a growing demand in the utilization of synchronous and asynchronous tools in WBI environments.

Classification of Internet Communication Tools

Since there are a number of WBI tools and technologies available, one of the most important challenge for the designers and instructors of distance courses is to identify the right tools for online learning (Levin, 1997). Dennison (2000) uses the properties of the tools to classify them into a taxonomy that shares one or more of the general properties. A taxonomy is an ordered hierarchical list. The parts of his taxonomy are:

- Number of people communicating: The communication can be individual-to-individual, individual-to-group, group-to-group, or group-to-individual.
- Real-time communication: The tools can be divided as asynchronous and asynchronous tools.
- Permanency of communication: The tools can be divided based upon whether messages on them are permanent or non-permanent.
- Automatic delivery of communication: The tools can be divided as to if the tool automatically delivers the message (pushing) or if the user must request for the message (pulling).

While the four properties above result in a possibility of 32 combinations, some of the combinations cannot have realistic tools. Dennison also stated that at the time of his writing, there were no tools for some of the combinations such as Individual-to-group, Permanent, and Push type. Example Internet communication tools for some of the categories are depicted in table 1.

Table 1. Taxonomy of Internet Communication Tools. Adapted from Dennison (2000).

Combination	Internet Tools, Dennison (2000)
Individual-to-individual, Synchronous, Permanent, Pull	CU-SeeMe
Individual-to-individual, Synchronous, Permanent, Push	Talk
Individual-to-individual, Asynchronous, Non-permanent, Pull	Voice mail
Individual-to-individual, Asynchronous, Non-permanent, Push	E-mail
Individual-to-individual, Asynchronous, Permanent, Push	E-mail
Individual-to-group, Synchronous, Permanent, Pull	IRC
Individual-to-group, Asynchronous, Non-permanent, Pull	Listservs WWW Usenet
Individual-to-group, Asynchronous, Non-permanent, Push	E-mail
Individual-to-group, Asynchronous, Permanent, Pull	Usenet
Individual-to-group, Asynchronous, Permanent, Push	E-mail
Individual-to-group, Permanent, Push	No tools in 2000

Problems with the Internet Communication Tools

In the literature, the current problems with tools that support WBI are found as (Harrison, 1997):

- Finding appropriate software for students and instructors,
- Access control to keep outsiders from disrupting class communication,
- Training students and instructors in the use of various software packages, and
- Cost of acquisition and use of appropriate tools.

This paper describes ICQ Active List (ICQ AL), an Internet tool which can support a web-based distance education community by eliminating all of the problems stated above. It also discusses its strengths and weaknesses and presents strategies for creating a community for a WBI course.

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ICQ and ICQ Active List

New forms of web tools are becoming available everyday. ICQ (I Seek You) is one of them, which is an integrated set of tools that informs who is on-line at any time and enables to contact them at will. Although it debuted as an IM tool with limited capabilities, users of ICQ can chat, send instant messages, files and URL's to others, or they just socialize with their Internet friends while connected to the Internet. All these functions are embedded into one easy to use client software.

Version 99b of ICQ client comes with a new feature, the ICQ Active List (ICQ AL). Users can create or join ICQ communities based on a common interest and easily access them from their ICQ client software. Once users join an AL, they can broadcast messages to all of the members of the list, receive events from other list members, chat in a virtual room, post and view messages in a threaded discussion group, e-mail each other and view information.

Users can also become an AL owner, which gives them total control over the AL. They can delegate authority to any member of their list. In order to run an AL, Active List server software needs to be run. As long as the AL server software is running, the AL will be accessible by all ICQ clients. Figure 1, figure 2, and figure 3 show the interfaces of ICQ AL server, ICQ AL manager and ICQ client respectively. ICQ AL and ICQ client as an Internet tool for some of the categories of Dennison's taxonomy is shown in table 2.

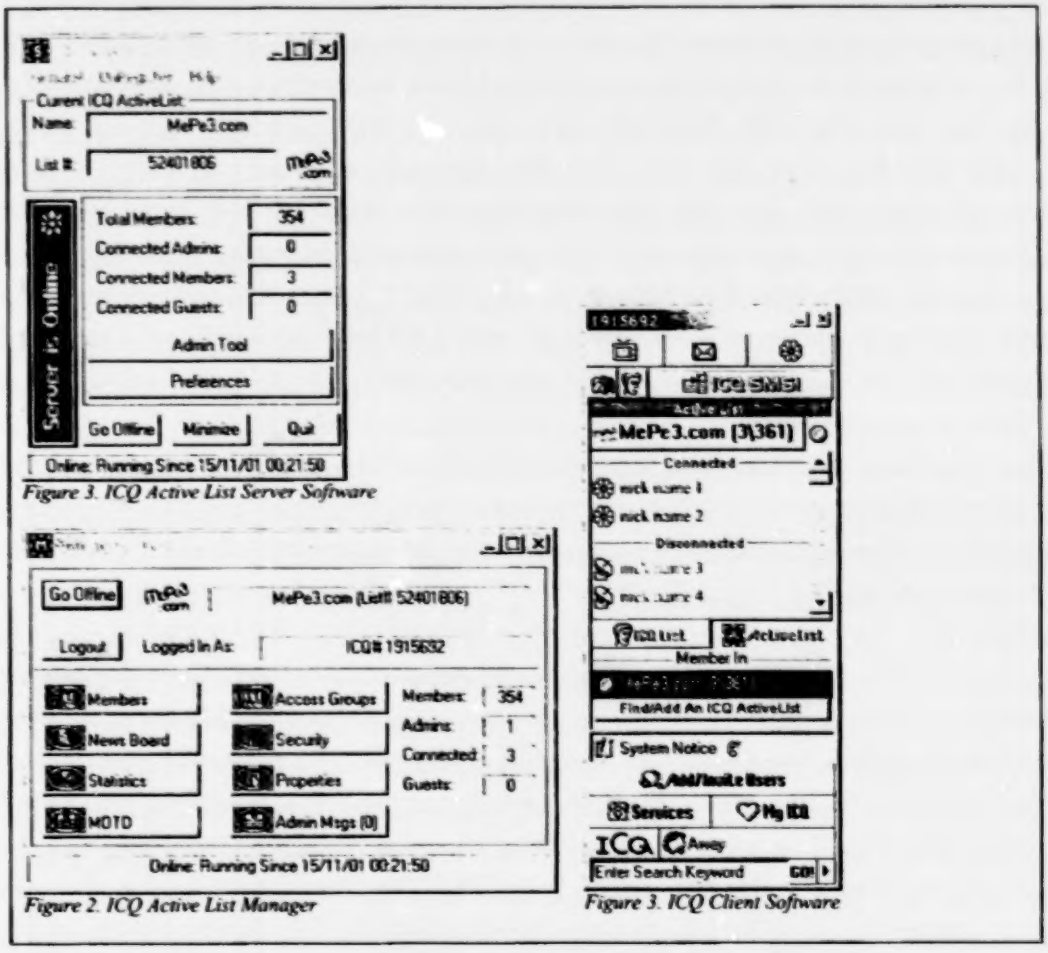

Figure 3. ICQ Active List Server Software

Figure 2. ICQ Active List Manager

Figure 3. ICQ Client Software

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Table 2. ICQ Active List as an Internet Tool for the Different Categories of Dennison's Taxonomy.

Combination	Internet Tools
Individual-to-individual, Synchronous, Permanent, Pull	E-mail, chat, threaded discussion, instant message, audio conferencing, and video conferencing functions in ICQ AL and ICQ client
Individual-to-individual, Synchronous, Permanent, Push	
Individual-to-individual, Asynchronous, Non-permanent, Pull	
Individual-to-individual, Asynchronous, Non-permanent, Push	
Individual-to-individual, Asynchronous, Permanent, Push	
Individual-to-group, Synchronous, Permanent, Pull	
Individual-to-group, Asynchronous, Non-permanent, Pull	
Individual-to-group, Asynchronous, Non-permanent, Push	
Individual-to-group, Asynchronous, Permanent, Pull	
Individual-to-group, Asynchronous, Permanent, Push	
Individual-to-group, Permanent, Push	

Characteristics of the ICQ Active List

AL eliminates most of the problems of Internet communication tools depicted before. The most obvious advantage is that it is an appropriate tool for online communities and web-based courses. It includes many functions including email, threaded discussion, chat, instant messaging, audio conferencing, and video conferencing. It even includes a very useful feature called 'Message of the Day' (MOTD) through which you can make last minute or daily announcements. You can add a button and an Internet address (URL) as part of this message. As soon as the users are connected to the AL, the message is displayed to the user. User may click the button in the MOTD at will and visit the Web page associated with the message. AL integrates all of these functions into one easy to use interface; therefore users perceive all of the functions as a whole. They do not switch from application to application to perform different tasks.

AL works on all Windows platforms including Window NT, Windows 2000, Windows 98, and Windows 95. According to information presented at the counter.com web site, these 4 windows platforms cover 93% of all users in October 2001. Therefore, most of the Internet users are able to run AL on their operating systems.

AL provides a detailed security policy in which the administrator of the AL can define security at different levels. The administrator might authorize the members of the AL or members can auto join to the AL. When authorization is required, all potential participants must ask for authorization before joining to the AL community. The administrator might or might not publish AL information and online/offline status on ICQ AL directory listing. When it is not published, Internet users will not able to see your AL in the AL directory. In case of Internet security attacks, the administrator may ban specific IP addresses, therefore not allowing access to the AL from those IP addresses. The banning may be done at the user level also. When you ban a user, he/she will not be able to access to the AL. To make handling security easier for different people in the same AL, the administrator may create groups in the AL and assign rights to these groups. These rights can be assigned in terms of broadcasting, chatting, forums, and seeing information about the AL.

Both ICQ and ICQ AL come with detailed help files. However, help function needs to be installed separately for ICQ client. AL help includes such topics as introduction to AL server, registering an AL, components of the AL, operating the AL, and configuration. In addition to the help included with the ICQ client, ICQ Web site includes an extensive online help site at the following internet address:

- http://www.icq.com/support/

AL provides detailed statistics for each of the members. It provides details on when the user joined the community, when the user last logged on, how many times the user logged on to the AL, how many messages were posted by the user to the threaded discussion group, and how many messages were broadcasted by the user to the AL group (Sending a message to the AL is called broadcasting). You can also get such server statistics as the total logon times since the server was created, the maximum number of users who got online at the same time in the AL, total number of threaded discussion group messages, the maximum number of users who used the chat, and the number of users in the chat in real time. Additional statistics included are total members of the AL, number of connected members, guests, administrators, and online users in real time. You can make an extensive analysis of the online community with the help of these data.

In any AL, administrative privileges can be shared by the owner of the AL with other members. This provides an opportunity to share the tasks related to the administration of the AL. Remote administrators can manage the AL server through their ICQ client, but before doing that the owner of the list should add these people to the administrators group.

You do not need to plan a budget for the use of this software, because both the AL server software and ICQ client are provided to the Internet community free of charge. The AL server software can be downloaded from:

- ftp://ftp.icq.com/pub/ICQ_Win95_98_NT4/ICQ2000a/ActiveList.exe

AL supports individualized messaging. Users of the AL can send a message only and only to the administrator of the group by using the 'Message Administrators' function. In this way they can ask questions about a specific issue that needs not to be known by the rest of the online community.

On the negative side is the fact that the AL server needs a continuous Internet connection to be active. The AL exists as long as the AL server software is run and connected to the Internet. If this does not happen, users will not be able to connect to the AL and the AL status will be offline to them.

Another problem might be in the support area. Since the software is offered free of charge, you can not contact the producer and request for a specific support. However, the help functions provided cover many of the issues, so this might not be a big problem.

It is not clear that the producer of the ICQ AL will continue to release new versions or the ICQ AL will be supported in the new releases of the ICQ client. However, the authors have operated an AL server for more than two years without an interruption. Besides, even if a new version of ICQ client is released which does not support AL, users may still use the old version of the ICQ client which supports AL. It was experienced that the oldest versions of the ICQ client software can still be run. The producer does not force the users to install the newest version of the ICQ client.

In terms of technical difficulties, there is a 400 member limit in the AL server. When this limit is arrived, no other people can join to the AL. The administrator should delete the non-active members to make list open to the new members. Most of the time, 400 member limit will be enough for most of the communities, especially if you are using AL for a Web-based course.

There is a policy set by the producer of the ICQ with the use of ICQ client. This policy states that ICQ service is not for use by children under 13 years of age. According to this policy, if it comes to company's attention through reliable means that a registered user is a child under 13 years of age, ICQ will cancel that user's account. Unfortunately, this may limit the creation of online communities, whose users are under the age of 13.

The Context of ICQ Active List in This Study

Kim (1998) proposed a model for creating online communities. Her model contains 9 principles, which she calls '9 Timeless Design Principles' for creating an online community. She built this model based on her experience with designing online communities for various clients. The principles in the model are helpful for addressing a number of social issues that everybody encounters when they create and administer an online community. The principals in this model are:

1. Define the purpose of the online community
2. Create distinct gathering places
3. Create member profiles
4. Promote effective leadership
5. Define a clear code of conduct
6. Organize events
7. Provide a range of roles such as visitors, new members, regular members, leaders, and etc.
8. Facilitate sub-groups
9. Integrate the online environment with the real world

Below is the description of how we applied these principles to create a sense of community.

1. Defining the Purpose of The Online Community

The purpose of an online community can be as general as bringing users together for a general discussion on a topic of interest. It can also be as specific as answering a question. In our case, we chose 'music' as a general topic. Members of the community have used the AL to discuss different genres, artists and music albums, to make comments on these, to share new services and Web sites related to the topic, and to socialize.

2. Creating Distinct Gathering Places

As soon as you run the ICQ AL server and connect it to the Internet, you have a virtual place on the Internet for your community to get together. Within the ICQ AL server itself, chat room functions as an extra unique place to gather. There is an indicator on the interface of the ICQ client, which shows the number of the people in the ICQ AL chat room. If members see any number here, they know that there are people in the chat room, and they can go there to get together. Even if there is nobody in the chat room, they may go to the chat room and wait for someone.

3. Creating Member Profiles

Every Internet user needs to create an account to use the ICQ client. During the creation of this account, the user might provide a wide range of personal information including name, nick name, e-mail addresses, postal address, gender, age, Internet homepage, occupation, position, interests, affiliations, phone numbers and a picture. Providing some or all of this information is up to the users. They may update their profile anytime by using their ICQ client. Since this profile information is provided by the members, administrators do not need to enter this information for each new member of the community. ICQ AL software associates the personal information provided by the members with the user accounts in ICQ AL server. Therefore, the administrators and other members can easily get information about the members of the community by using this feature.

4. Promoting Effective Leadership

During our experiences, it turned out that creating a community is just one side of the coin. After the creation, you need to identify strategies that will foster communication in the online community. Otherwise, the communication will not go beyond simple greeting messages. You would be even lucky if someone would respond to those greetings. Whatever tool you use, either chat, threaded discussion, or instant messaging, someone or a group of members need to take the initiative to make the communication ongoing. Kim (1998) examples this by using the land metaphor. You can purchase a piece of land, but it will not automatically turn into a nice garden. You need to know your needs, 'sow the seeds at the right time, manage the growth, defend against attacks, and be prepared to improvise'.

5. Defining a Clear Code of Conduct

Within the ICQ AL server, the properties of the AL server may be described with a short description and long description. Short description is useful for informing people in the AL directory. Long description may be used to define the code of the

conduct for the community. In this area, we have defined rules to follow for the members of the community. As part of these rules, we defined actions for inappropriate behavior. For example, if a member has a bad mouth in the community, he is banned and he can not access to the community for a period of time. New rules had to be defined as the community grew and the number of interactions increased. For example, we recommended members not to accept any type of files from members that they did not know. We also made the code of conduct available on a Web site for the community.

6. Organizing Events

We organized several events in our online community. A backgammon tournament was one of them. The administrators made an analysis of available tools for this purpose. Most of the time, new tools are required to organize such events. Therefore, emphasize should be put on those tools that the members of the community will be able to use with minimum effort and resources. An innovative 3D world might sound good at first, but you need to make sure that every member of the community will have access to such a tool. It was observed that this kind of activities made the members who participated in the activities closer to each other, just like in the real world. This kind of members interacted among themselves more often and less formally.

7. Providing a Range of Roles

Some of the roles are already defined when you run your AL. These roles are administrator roles, new member roles, and guest roles. We defined regular member roles in addition to this. Administrators are responsible for the administration of the AL, like running the AL, adding and removing the members, maintaining the member database, and etc. By default, every new member of the community is assigned to new member role. This makes other members differentiate between new members and regular members. Guest role was disabled since we wanted every participant of the community to be a member of the community. Regular member role was given to those members who regularly logged on, broadcasted messages, posted messages in threaded discussion group, and participated in the chat room. Up to 4 icons can be used to differentiate the members in different roles. The function of these icons is very important. By looking at the icon of a member, another member can easily recognize the role of the other member just like identifying social status of a person by looking at him in the real world.

8. Facilitating Sub-Groups

We experienced that after a while, some of the members would like to focus on specific sub-topics of the main topic. For example, in the threaded discussion group, different threads have emerged in time. These threads included such sub-topics as the properties of a quality guitar, exchange of music hardware, comments on a particular song, and etc. We experienced that threaded discussion tool serves a good function towards this principle.

9. Integrating the Online Environment with the Real World

Since most of the members of our community are scattered around the world, it is almost impossible to gt together physically with the members of the community. However, audio and video conferencing technologies may help closing the gap between the virtual world and the physical world. In today's computers nearly every computer comes with a sound card. When you have a sound card in your computer, you can use a software called NetMeeting to make voice conversation between 2 different computers connected to the Internet. ICQ client successfully integrated NetMeeting into its own structure. A member may just select another member in the list and initiate a voice conversation. Then, NetMeeting starts and the connection is established between the remote computers. In our community, we have made many successful voice conversations between different locations as far as 10000 miles from each other. Most of the time the quality and pace of the conversation was not very different from a phone conversation. NetMeeting also supports video conferencing. However, almost none of the members had a camcorder required to conduct a video conferencing.

External Evaluation

We have examined some external evaluation data related to the ICQ AL. Download.com is a Web site that distributes software. On this site, Users may also submit their opinions about various software they use by rating the features, usability, and stability of the software between bad and excellent. They may also add their additional comments. As of November 2001, 69% of the users recommended ICQ AL to be used by others (109 votes). Features, usability, and stability were all rated as 4, which meant good in the range.

Some of the users made useful qualitative comments. One of the users, who was positive, identified the software as very nice. He gave some technical information on his usage and indicated that he ran several AL servers flawlessly on a computer with a Pentium 133 MHz processor and 32 MB RAM.

Another user made a very interesting comment. He indicated that his AL server was running smoothly all the time with no problems. He commented that:

The downfall of ICQ [AL] is its best feature. It has tons of options. You just have to be smart enough to use them. If you are afraid of your programs or you don't play with them, then you will never get it right.

Discussion and Conclusions

We have used the principles identified by Kim (1998) successfully to create an online community on the Internet. This study is still in progress and every new day might result in a different experience. If you can successfully follow the 9 principles in the creation of your online community, most of the time members of your community will swing between the virtual world and the actual world just like a pendulum swinging between two different points on a continuum.

ICQ Active List is a suitable and efficient tool in creating an online community. And you can use this tool to create learning communities for your Web-based courses. However, just like any other tool, you need to use components of this tool at the right time, right place, and with appropriate strategies. Providing gathering places, defining the rules, organizing events, providing roles, and facilitating sub-groups are useful strategies that can give your online community a character. However, they are not

enough to complete the recipe. If you top off these with effective leadership then you will have an effective and functional community. Our experience showed us that, most of the people in online communities are still not used to the freedom Internet has offered. They still need leaders who will guide them.

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